

10340-WO.ST25.txt  
SEQUENCE LISTING

&lt;110&gt; Novozymes A/S

&lt;120&gt; CGTASE VARIANTS

&lt;130&gt; 10340-WO

&lt;160&gt; 17

&lt;170&gt; PatentIn version 3.2

&lt;210&gt; 1

&lt;211&gt; 713

&lt;212&gt; PRT

&lt;213&gt; Bacillus agaradherens

&lt;400&gt; 1

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Phe Ile Leu Ser Gly Ser Gly Ile Leu Asp Phe Ser Ile Thr Ser Ala  
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Asn Ala Gln Gln Ala Thr Asp Arg Ser Asn Ser Val Asn Tyr Ser Thr  
35 40 45

Asp Gly Ile Tyr Gln Ile Val Thr Asp Arg Phe Tyr Asp Gly Asp Glu  
50 55 60

Ser Asn Asn Pro Ser Gly Glu Leu Tyr Ser Glu Gly Cys Lys Asn Leu  
65 70 75 80

Arg Lys Tyr Cys Gly Gly Asp Trp Gln Gly Ile Ile Asp Lys Ile Asp  
85 90 95

Asp Gly Tyr Leu Thr Asn Met Gly Val Thr Ala Leu Trp Ile Ser Pro  
100 105 110

Pro Val Glu Asn Ile Phe Glu Thr Ile Asp Asp Glu Ser Gly Thr Thr  
115 120 125

Ser Tyr His Gly Tyr Trp Ala Arg Asp Tyr Lys Lys Thr Asn Pro Phe  
130 135 140

Phe Gly Ser Thr Glu Asp Phe Glu Arg Leu Ile Glu Thr Ala His Ser  
145 150 155 160

His Asp Ile Lys Ile Val Ile Asp Leu Ala Pro Asn His Thr Ser Pro  
165 170 175

Ala Asp Phe Asp Asn Pro Asn Tyr Ala Glu Asn Gly Ile Leu Tyr Asp  
180 185 190

Asn Gly Asn Tyr Val Ser Ser Tyr Ser Asp Asn Ser Asp Leu Phe Leu

195

200

10340-WO.ST25.txt

205

Tyr Asn Gly Gly Thr Asp Phe Ser Thr Tyr Glu Asp Glu Ile Tyr Arg  
210 215 220

Asn Leu Phe Asp Leu Ala Ser Phe Asn His Ile Asn Ala Glu Leu Asn  
225 230 235 240

Asn Tyr Leu Glu Asp Ala Val Lys Lys Trp Leu Asp Leu Gly Ile Asp  
245 250 255

Gly Ile Arg Ile Asp Ala Val Ala His Met Pro Pro Gly Trp Gln Lys  
260 265 270

Ala Tyr Met Asp Thr Ile Tyr Asp His Arg Ala Val Phe Thr Phe Gly  
275 280 285

Glu Trp Phe Thr Gly Pro Tyr Gly Asn Glu Asp Tyr Thr Lys Phe Ala  
290 295 300

Asn Asn Ser Gly Met Ser Val Leu Asp Phe Arg Phe Ala Gln Thr Thr  
305 310 315 320

Arg Asn Val Ile Gly Asn Asn Asn Gly Thr Met Tyr Asp Ile Glu Lys  
325 330 335

Met Leu Thr Asp Thr Glu Asn Asp Tyr Asp Arg Pro Gln Asp Gln Val  
340 345 350

Thr Phe Leu Asp Asn His Asp Met Ser Arg Phe Thr Asn Asp Gly Glu  
355 360 365

Ser Thr Arg Thr Thr Asp Ile Gly Leu Ala Leu Met Leu Thr Ser Arg  
370 375 380

Gly Val Pro Thr Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Glu Gly Asp  
385 390 395 400

Gly Asp Pro Gly Ser Arg Gly Met Met Glu Ser Phe Gly Glu Asn Thr  
405 410 415

Asp Ala Tyr Lys Leu Ile Gln Lys Leu Ala Pro Leu Arg Lys Ser Asn  
420 425 430

Pro Ala Tyr Gly Tyr Gly Thr Thr Lys Glu Arg Trp Ile Asn Asp Asp  
435 440 445

Val Ile Ile Tyr Glu Arg Asn Phe Gly Asp Asn Tyr Ala Leu Ile Ala  
450 455 460

Ile Asn Arg Asn Leu Asn Thr Ser Tyr Asn Ile Gln Gly Leu Gln Thr  
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465

470

475

480

Glu Met Pro Ser Asn Ser Tyr Asp Asp Val Leu Asp Gly Leu Leu Asp  
485 490 495

Gly Gln Ser Ile Val Val Asp Asn Asn Gly Glu Val Asn Glu Phe Gln  
500 505 510

Met Ser Pro Gly Glu Val Gly Val Trp Glu Phe Glu Ala Thr Asn Val  
515 520 525

Asp Lys Pro Ser Ile Gly Gln Val Gly Pro Ile Ile Gly Glu Ala Gly  
530 535 540

Arg Thr Val Thr Ile Ser Gly Glu Gly Phe Gly Ser Ser Pro Gly Thr  
545 550 555 560

Val Gln Phe Gly Ser Thr Ser Ala Glu Ile Val Ser Trp Asn Asp Thr  
565 570 575

Val Ile Ile Ile Thr Val Pro Asn Asn Glu Ala Gly Tyr His Asp Ile  
580 585 590

Thr Val Val Thr Glu Asp Glu Gln Val Ser Asn Ala Tyr Glu Phe Glu  
595 600 605

Val Leu Thr Ala Asp Gln Val Thr Val Arg Phe Ile Ile Asp Asn Ala  
610 615 620

Glu Thr Lys Met Gly Glu Asn Ile Phe Leu Val Gly Asn Val His Glu  
625 630 635 640

Leu Gly Asn Trp Asp Pro Glu Gln Ser Val Gly Arg Phe Phe Asn Gln  
645 650 655

Val Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Asn Val Pro Ala  
660 665 670

Asn Thr Asp Leu Glu Phe Lys Phe Ile Lys Ile Asp Gln Asp Asn Asn  
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Gly Thr Gly Ile Ile Arg Val Asp Trp  
705 710

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<212> PRT

<213> Bacillus agaradherens

## 10340-WO.ST25.txt

&lt;400&gt; 2

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Val Ile Leu Ser Gly Leu Ser Ile Leu Asp Phe Ser Ile Thr Ser Ala  
20 25 30

Ser Ala Gln Gln Ala Thr Asp Arg Ser Asn Ser Val Asn Tyr Ser Thr  
35 40 45

Asp Val Ile Tyr Gln Ile Val Thr Asp Arg Phe Tyr Asp Gly Asp Glu  
50 55 60

Ser Asn Asn Pro Ser Gly Glu Leu Tyr Ser Glu Asp Cys Lys Asn Leu  
65 70 75 80

Arg Lys Tyr Cys Gly Gly Asp Trp Gln Gly Ile Ile Asp Lys Ile Asp  
85 90 95

Asp Gly Tyr Leu Thr Asn Met Gly Val Thr Ala Leu Trp Ile Ser Pro  
100 105 110

Pro Val Glu Asn Ile Phe Glu Thr Ile Asp Asp Glu Phe Gly Thr Thr  
115 120 125

Ser Tyr His Gly Tyr Trp Ala Arg Asp Tyr Lys Lys Thr Asn Pro Phe  
130 135 140

Phe Gly Ser Thr Glu Asp Phe Glu Arg Leu Ile Glu Thr Ala His Ser  
145 150 155 160

His Asp Ile Lys Ile Val Ile Asp Leu Ala Pro Asn His Thr Ser Pro  
165 170 175

Ala Asp Phe Asp Asn Pro Asp Tyr Ala Glu Asn Gly Val Leu Tyr Asp  
180 185 190

Asp Gly Asn Tyr Leu Gly Ser Tyr Ser Asp Asp Ser Asp Leu Phe Leu  
195 200 205

Tyr Asn Gly Gly Thr Asp Phe Ser Asn Tyr Glu Asp Glu Ile Tyr Arg  
210 215 220

Asn Leu Phe Asp Leu Ala Ser Phe Asn His Ile Asn Ser Glu Leu Asn  
225 230 235 240

Asn Tyr Leu Glu Asp Ala Val Lys Lys Trp Leu Asp Leu Gly Ile Asp  
245 250 255

Gly Ile Arg Ile Asp Ala Val Ala His Met Pro Pro Gly Trp Lys Lys  
260 265 270

## 10340-WO.ST25.txt

Ala Tyr Met Asp Thr Ile Tyr Asp His Arg Ala Val Phe Thr Phe Gly  
275 280 285

Glu Trp Phe Thr Gly Pro Ser Gly Asn Glu Asp Tyr Thr Lys Phe Ala  
290 295 300

Asn Asn Ser Gly Met Ser Val Leu Asp Phe Arg Phe Ala Gln Thr Thr  
305 310 315 320

Arg Asn Val Ile Gly Asn Asn Asn Gly Thr Met Tyr Asp Ile Glu Lys  
325 330 335

Met Leu Thr Asp Thr Glu Asn Asp Tyr Asp Arg Pro Gln Asp Gln Val  
340 345 350

Thr Phe Leu Asp Asn His Asp Met Ser Arg Phe Thr Asn Gly Gly Glu  
355 360 365

Ser Thr Arg Thr Thr Asp Ile Gly Leu Ala Leu Met Leu Thr Ser Arg  
370 375 380

Gly Val Pro Thr Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Lys Gly Asp  
385 390 395 400

Gly Asp Pro Gly Ser Arg Gly Met Met Ala Ser Phe Asp Glu Asn Thr  
405 410 415

Asp Ala Tyr Lys Leu Ile Gln Lys Leu Ala Pro Leu Arg Lys Ser Asn  
420 425 430

Pro Ala Tyr Gly Tyr Gly Thr Thr Glu Arg Trp Ile Asn Asp Asp  
435 440 445

Val Leu Ile Tyr Glu Arg His Phe Gly Glu Asn Tyr Ala Leu Ile Ala  
450 455 460

Ile Asn Arg Ser Leu Asn Thr Ser Tyr Asn Ile Gln Gly Leu Gln Thr  
465 470 475 480

Glu Met Pro Ser Asn Ser Tyr Asp Asp Val Leu Asp Gly Leu Leu Asp  
485 490 495

Gly Gln Ser Ile Val Val Asp Asn Lys Gly Gly Val Asn Glu Phe Gln  
500 505 510

Met Ser Pro Gly Glu Val Ser Val Trp Glu Phe Glu Ala Glu Asn Val  
515 520 525

Asp Lys Pro Ser Ile Gly Gln Val Gly Pro Ile Ile Gly Glu Ala Gly  
530 535 540

## 10340-WO.ST25.txt

Arg Thr Val Thr Ile Ser Gly Glu Gly Phe Gly Ser Ser Gln Gly Thr  
 545 550 555 560

Val His Phe Gly Ser Thr Ser Ala Glu Ile Leu Ser Trp Asn Asp Thr  
 565 570 575

Ile Ile Thr Leu Thr Val Pro Asn Asn Glu Ala Gly Tyr His Asp Ile  
 580 585 590

Thr Val Val Thr Glu Asp Glu Gln Val Ser Asn Ala Tyr Glu Phe Glu  
 595 600 605

Val Leu Thr Ala Asp Gln Val Thr Val Arg Phe Ile Ile Asp Asn Ala  
 610 615 620

Glu Thr Lys Leu Gly Glu Asn Val Phe Leu Val Gly Asn Val His Glu  
 625 630 635 640

Leu Gly Asn Trp Asp Pro Glu Gln Ser Val Gly Arg Phe Phe Asn Gln  
 645 650 655

Ile Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Asn Val Pro Ala  
 660 665 670

Asn Thr Asp Leu Glu Phe Lys Phe Ile Lys Ile Asp Gln Asp Asn Asn  
 675 680 685

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<212> PRT

<213> Panibacillus macerans

<400> 3

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 20 25 30

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 35 40 45

Thr Asp Arg Phe Ala Asp Gly Asp Arg Thr Asn Asn Pro Ala Gly Asp  
 50 55 60

## 10340-WO-ST25.txt

Ala Phe Ser Gly Asp Arg Ser Asn Leu Lys Leu Tyr Phe Gly Gly Asp  
65 70 75 80

Trp Gln Gly Ile Ile Asp Lys Ile Asn Asp Gly Tyr Leu Thr Gly Met  
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Gly Val Thr Ala Leu Trp Ile Ser Gln Pro Val Glu Asn Ile Thr Ser  
100 105 110

Val Ile Lys Tyr Ser Gly Val Asn Asn Thr Ser Tyr His Gly Tyr Trp  
115 120 125

Ala Arg Asp Phe Lys Gln Thr Asn Asp Ala Phe Gly Asp Phe Ala Asp  
130 135 140

Phe Gln Asn Leu Ile Asp Thr Ala His Ala His Asn Ile Lys Val Val  
145 150 155 160

Ile Asp Phe Ala Pro Asn His Thr Ser Pro Ala Asp Arg Asp Asn Pro  
165 170 175

Gly Phe Ala Glu Asn Gly Gly Met Tyr Asp Asn Gly Ser Leu Leu Gly  
180 185 190

Ala Tyr Ser Asn Asp Thr Ala Gly Leu Phe His His Asn Gly Gly Thr  
195 200 205

Asp Phe Ser Thr Ile Glu Asp Gly Ile Tyr Lys Asn Leu Tyr Asp Leu  
210 215 220

Ala Asp Ile Asn His Asn Asn Ala Met Asp Ala Tyr Phe Lys Ser  
225 230 235 240

Ala Ile Asp Leu Trp Leu Gly Met Gly Val Asp Gly Ile Arg Phe Asp  
245 250 255

Ala Val Lys His Met Pro Phe Gly Trp Gln Lys Ser Phe Val Ser Ser  
260 265 270

Ile Tyr Gly Gly Asp His Pro Val Phe Thr Phe Gly Glu Trp Tyr Leu  
275 280 285

Gly Ala Asp Gln Thr Asp Gly Asp Asn Ile Lys Phe Ala Asn Glu Ser  
290 295 300

Gly Met Asn Leu Leu Asp Phe Glu Tyr Ala Gln Glu Val Arg Glu Val  
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Phe Arg Asp Lys Thr Glu Thr Met Lys Asp Leu Tyr Glu Val Leu Ala  
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## 10340-WO.ST25.txt

Ser Thr Glu Ser Gln Tyr Asp Tyr Ile Asn Asn Met Val Thr Phe Ile  
340 345 350

Asp Asn His Asp Met Asp Arg Phe Gln Val Ala Gly Ser Gly Thr Arg  
355 360 365

Ala Thr Glu Gln Ala Leu Ala Leu Thr Leu Thr Ser Arg Gly Val Pro  
370 375 380

Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly Asp Gly Asp Pro  
385 390 395 400

Asn Asn Arg Ala Met Met Thr Ser Phe Asn Thr Gly Thr Thr Ala Tyr  
405 410 415

Lys Val Ile Gln Ala Leu Ala Pro Leu Arg Lys Ser Asn Pro Ala Ile  
420 425 430

Ala Tyr Gly Thr Thr Thr Glu Arg Trp Val Asn Asn Asp Val Leu Ile  
435 440 445

Ile Glu Arg Lys Phe Gly Ser Ser Ala Ala Leu Val Ala Ile Asn Arg  
450 455 460

Asn Ser Ser Ala Ala Tyr Pro Ile Ser Gly Leu Leu Ser Ser Leu Pro  
465 470 475 480

Ala Gly Thr Tyr Ser Asp Val Leu Asn Gly Leu Leu Asn Gly Asn Ser  
485 490 495

Ile Thr Val Gly Ser Gly Gly Ala Val Thr Asn Phe Thr Leu Ala Ala  
500 505 510

Gly Gly Thr Ala Val Trp Gln Tyr Thr Ala Pro Glu Thr Ser Pro Ala  
515 520 525

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530 535 540

Ile Asp Gly Arg Gly Phe Gly Gly Thr Ala Gly Thr Val Tyr Phe Gly  
545 550 555 560

Thr Thr Ala Val Thr Gly Ser Gly Ile Val Ser Trp Glu Asp Thr Gln  
565 570 575

Ile Lys Ala Val Ile Pro Lys Val Ala Ala Gly Lys Thr Gly Val Ser  
580 585 590

Val Lys Thr Ser Ser Gly Thr Ala Ser Asn Thr Phe Lys Ser Phe Asn  
595 600 605

## 10340-WO.ST25.txt

Val Leu Thr Gly Asp Gln Val Thr Val Arg Phe Leu Val Asn Gln Ala  
610 615 620

Asn Thr Asn Tyr Gly Thr Asn Val Tyr Leu Val Gly Asn Ala Ala Glu  
625 630 635 640

Leu Gly Ser Trp Asp Pro Asn Lys Ala Ile Gly Pro Met Tyr Asn Gln  
645 650 655

Val Ile Ala Lys Tyr Pro Ser Trp Tyr Tyr Asp Val Ser Val Pro Ala  
660 665 670

Gly Thr Lys Leu Asp Phe Lys Phe Ile Lys Lys Gly Gly Thr Val  
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Val Gly Thr Val Thr Val Asp Trp Gln Asn  
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<212> PRT  
<213> Panibacillus macerans

<400> 4

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20 25 30

Val Asn Asn Lys Leu Asn Phe Ser Thr Asp Thr Val Tyr Gln Ile Val  
35 40 45

Thr Asp Arg Phe Val Asp Gly Asn Ser Ala Asn Asn Pro Thr Gly Ala  
50 55 60

Ala Phe Ser Ser Asp His Ser Asn Leu Lys Leu Tyr Phe Gly Gly Asp  
65 70 75 80

Trp Gln Gly Ile Thr Asn Lys Ile Asn Asp Gly Tyr Leu Thr Gly Met  
85 90 95

Gly Ile Thr Ala Leu Trp Ile Ser Gln Pro Val Glu Asn Ile Thr Ala  
100 105 110

Val Ile Asn Tyr Ser Gly Val Asn Asn Thr Ala Tyr His Gly Tyr Trp  
115 120 125

10340-WO.ST25.txt

Pro Arg Asp Phe Lys Lys Thr Asn Ala Ala Phe Gly Ser Phe Thr Asp  
130 135 140

Phe Ser Asn Leu Ile Ala Ala Ala His Ser His Asn Ile Lys Val Val  
145 150 155 160

Met Asp Phe Ala Pro Asn His Thr Asn Pro Ala Ser Ser Thr Asp Pro  
165 170 175

Ser Phe Ala Glu Asn Gly Ala Leu Tyr Asn Asn Gly Thr Leu Leu Gly  
180 185 190

Lys Tyr Ser Asn Asp Thr Ala Gly Leu Phe His His Asn Gly Gly Thr  
195 200 205

Asp Phe Ser Thr Thr Glu Ser Gly Ile Tyr Lys Asn Leu Tyr Asp Leu  
210 215 220

Ala Asp Ile Asn Gln Asn Asn Asn Thr Ile Asp Ser Tyr Leu Lys Glu  
225 230 235 240

Ser Ile Gln Leu Trp Leu Asn Leu Gly Val Asp Gly Ile Arg Phe Asp  
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Ala Val Lys His Met Pro Gln Gly Trp Gln Lys Ser Tyr Val Ser Ser  
260 265 270

Ile Tyr Ser Ser Ala Asn Pro Val Phe Thr Phe Gly Glu Trp Phe Leu  
275 280 285

Gly Pro Asp Glu Met Thr Gln Asp Asn Ile Asn Phe Ala Asn Gln Ser  
290 295 300

Gly Met His Leu Leu Asp Phe Ala Phe Ala Gln Glu Ile Arg Glu Val  
305 310 315 320

Phe Arg Asp Lys Ser Glu Thr Met Thr Asp Leu Asn Ser Val Ile Ser  
325 330 335

Ser Thr Gly Ser Ser Tyr Asn Tyr Ile Asn Asn Met Val Thr Phe Ile  
340 345 350

Asp Asn His Asp Met Asp Arg Phe Gln Gln Ala Gly Ala Ser Thr Arg  
355 360 365

Pro Thr Glu Gln Ala Leu Ala Val Thr Leu Thr Ser Arg Gly Val Pro  
370 375 380

Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly Asn Gly Asp Pro  
385 390 395 400

10340-WO.ST25.txt

Asn Asn Arg Gly Met Met Thr Gly Phe Asp Thr Asn Lys Thr Ala Tyr  
405 410 415

Lys Val Ile Lys Ala Leu Ala Pro Leu Arg Lys Ser Asn Pro Ala Leu  
420 425 430

Ala Tyr Gly Ser Thr Thr Gln Arg Trp Val Asn Ser Asp Val Tyr Val  
435 440 445

Tyr Glu Arg Lys Phe Gly Ser Asn Val Ala Leu Val Ala Val Asn Arg  
450 455 460

Ser Ser Thr Thr Ala Tyr Pro Ile Ser Gly Ala Leu Thr Ala Leu Pro  
465 470 475 480

Asn Gly Thr Tyr Thr Asp Val Leu Gly Gly Leu Leu Asn Gly Asn Ser {  
485 490 495

Ile Thr Val Asn Gly Gly Thr Val Ser Asn Phe Thr Leu Ala Ala Gly  
500 505 510

Gly Thr Ala Val Trp Gln Tyr Thr Thr Thr Glu Ser Ser Pro Ile Ile  
515 520 525

Gly Asn Val Gly Pro Thr Met Gly Lys Pro Gly Asn Thr Ile Thr Ile  
530 535 540

Asp Gly Arg Gly Phe Gly Thr Thr Lys Asn Lys Val Thr Phe Gly Thr  
545 550 555 560

Thr Ala Val Thr Gly Ala Asn Ile Val Ser Trp Glu Asp Thr Glu Ile  
565 570 575

Lys Val Lys Val Pro Asn Val Ala Ala Gly Asn Thr Ala Val Thr Val  
580 585 590

Thr Asn Ala Ala Gly Thr Thr Ser Ala Ala Phe Asn Asn Phe Asn Val  
595 600 605

Leu Thr Ala Asp Gln Val Thr Val Arg Phe Lys Val Asn Asn Ala Thr  
610 615 620

Thr Ala Leu Gly Gln Asn Val Tyr Leu Thr Gly Asn Val Ala Glu Leu  
625 630 635 640

Gly Asn Trp Thr Ala Ala Asn Ala Ile Gly Pro Met Tyr Asn Gln Val  
645 650 655

Glu Ala Ser Tyr Pro Thr Trp Tyr Phe Asp Val Ser Val Pro Ala Asn  
660 665 670

10340-WO.ST25.txt

Thr Ala Leu Gln Phe Lys Phe Ile Lys Val Asn Gly Ser Thr Val Thr  
 675 680 685

Trp Glu Gly Gly Asn Asn His Thr Phe Thr Ser Pro Ser Ser Gly Val  
 690 695 700

Ala Thr Val Thr Val Asp Trp Gln Asn  
 705 710

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 <211> 683  
 <212> PRT  
 <213> Thermoanaerobacterium thermosulfurigenes

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 20 25 30

Asn Pro Thr Gly Asp Leu Tyr Asp Pro Thr His Thr Ser Leu Lys Lys  
 35 40 45

Tyr Phe Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly  
 50 55 60

Tyr Leu Thr Gly Met Gly Val Thr Ala Ile Trp Ile Ser Gln Pro Val  
 65 70 75 80

Glu Asn Ile Tyr Ala Val Leu Pro Asp Ser Thr Phe Gly Gly Ser Thr  
 85 90 95

Ser Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Arg Thr Asn Pro Tyr  
 100 105 110

Phe Gly Ser Phe Thr Asp Phe Gln Asn Leu Ile Asn Thr Ala His Ala  
 115 120 125

His Asn Ile Lys Val Ile Ile Asp Phe Ala Pro Asn His Thr Ser Pro  
 130 135 140

Ala Ser Glu Thr Asp Pro Thr Tyr Ala Glu Asn Gly Arg Leu Tyr Asp  
 145 150 155 160

Asn Gly Thr Leu Leu Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr Phe  
 165 170 175

His His Tyr Gly Gly Thr Asp Phe Ser Ser Tyr Glu Asp Gly Ile Tyr  
 180 185 190

Arg Asn Leu Phe Asp Leu Ala Asp Leu Asn Gln Gln Asn Ser Thr Ile  
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195

200

10340-WO.ST25.txt  
205

Asp Ser Tyr Leu Lys Ser Ala Ile Lys Val Trp Leu Asp Met Gly Ile  
210 215 220

Asp Gly Ile Arg Leu Asp Ala Val Lys His Met Pro Phe Gly Trp Gln  
225 230 235 240

Lys Asn Phe Met Asp Ser Ile Leu Ser Tyr Arg Pro Val Phe Thr Phe  
245 250 255

Gly Glu Trp Phe Leu Gly Thr Asn Glu Ile Asp Val Asn Asn Thr Tyr  
260 265 270

Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ser Gln  
275 280 285

Lys Val Arg Gln Val Phe Arg Asp Asn Thr Asp Thr Met Tyr Gly Leu  
290 295 300

Asp Ser Met Ile Gln Ser Thr Ala Ser Asp Tyr Asn Phe Ile Asn Asp  
305 310 315 320

Met Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Tyr Asn Gly  
325 330 335

Gly Ser Thr Arg Pro Val Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser  
340 345 350

Arg Gly Val Pro Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly  
355 360 365

Asn Gly Asp Pro Tyr Asn Arg Ala Met Met Thr Ser Phe Asn Thr Ser  
370 375 380

Thr Thr Ala Tyr Asn Val Ile Lys Lys Leu Ala Pro Leu Arg Lys Ser  
385 390 395 400

Asn Pro Ala Ile Ala Tyr Gly Thr Thr Gln Gln Arg Trp Ile Asn Asn  
405 410 415

Asp Val Tyr Ile Tyr Glu Arg Lys Phe Gly Asn Asn Val Ala Leu Val  
420 425 430

Ala Ile Asn Arg Asn Leu Ser Thr Ser Tyr Asn Ile Thr Gly Leu Tyr  
435 440 445

Thr Ala Leu Pro Ala Gly Thr Tyr Thr Asp Val Leu Gly Gly Leu Leu  
450 455 460

Asn Gly Asn Ser Ile Ser Val Ala Ser Asp Gly Ser Val Thr Pro Phe  
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10340-WO.ST25.txt  
465                  470                  475                  480

Thr Leu Ser Ala Gly Glu Val Ala Val Trp Gln Tyr Val Ser Ser Ser  
485                  490                  495

Asn Ser Pro Leu Ile Gly His Val Gly Pro Thr Met Thr Lys Ala Gly  
500                  505                  510

Gln Thr Ile Thr Ile Asp Gly Arg Gly Phe Gly Thr Thr Ser Gly Gln  
515                  520                  525

Val Leu Phe Gly Ser Thr Ala Gly Thr Ile Val Ser Trp Asp Asp Thr  
530                  535                  540

Glu Val Lys Val Lys Val Pro Ser Val Thr Pro Gly Lys Tyr Asn Ile  
545                  550                  555                  560

Ser Leu Lys Thr Ser Ser Gly Ala Thr Ser Asn Thr Tyr Asn Asn Ile  
565                  570                  575

Asn Ile Leu Thr Gly Asn Gln Ile Cys Val Arg Phe Val Val Asn Asn  
580                  585                  590

Ala Ser Thr Val Tyr Gly Glu Asn Val Tyr Leu Thr Gly Asn Val Ala  
595                  600                  605

Glu Leu Gly Asn Trp Asp Thr Ser Lys Ala Ile Gly Pro Met Phe Asn  
610                  615                  620

Gln Val Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Ser Val Pro  
625                  630                  635                  640

Ala Gly Thr Thr Ile Gln Phe Lys Phe Ile Lys Lys Asn Gly Asn Thr  
645                  650                  655

Ile Thr Trp Glu Gly Gly Ser Asn His Thr Tyr Thr Val Pro Ser Ser  
660                  665                  670

Ser Thr Gly Thr Val Ile Val Asn Trp Gln Gln  
675                  680

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<213> Thermoanaerobacter sp.

<400> 6

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## 10340-WO.ST25.txt

Asn Pro Thr Gly Asp Leu Tyr Asp Pro Thr His Thr Ser Leu Lys Lys  
35 40 45

Tyr Phe Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly  
50 55 60

Tyr Leu Thr Gly Met Gly Ile Thr Ala Ile Trp Ile Ser Gln Pro Val  
65 70 75 80

Glu Asn Ile Tyr Ala Val Leu Pro Asp Ser Thr Phe Gly Gly Ser Thr  
85 90 95

Ser Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Lys Thr Asn Pro Phe  
100 105 110

Phe Gly Ser Phe Thr Asp Phe Gln Asn Leu Ile Ala Thr Ala His Ala  
115 120 125

His Asn Ile Lys Val Ile Ile Asp Phe Ala Pro Asn His Thr Ser Pro  
130 135 140

Ala Ser Glu Thr Asp Pro Thr Tyr Gly Glu Asn Gly Arg Leu Tyr Asp  
145 150 155 160

Asn Gly Val Leu Leu Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr Phe  
165 170 175

His His Tyr Gly Gly Thr Asn Phe Ser Ser Tyr Glu Asp Gly Ile Tyr  
180 185 190

Arg Asn Leu Phe Asp Leu Ala Asp Leu Asp Gln Gln Asn Ser Thr Ile  
195 200 205

Asp Ser Tyr Leu Lys Ala Ala Ile Lys Leu Trp Leu Asp Met Gly Ile  
210 215 220

Asp Gly Ile Arg Met Asp Ala Val Lys His Met Ala Phe Gly Trp Gln  
225 230 235 240

Lys Asn Phe Met Asp Ser Ile Leu Ser Tyr Arg Pro Val Phe Thr Phe  
245 250 255

Gly Glu Trp Tyr Leu Gly Thr Asn Glu Val Asp Pro Asn Asn Thr Tyr  
260 265 270

Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ala Gln  
275 280 285

Lys Val Arg Gln Val Phe Arg Asp Asn Thr Asp Thr Met Tyr Gly Leu  
290 295 300

## 10340-WO.ST25.txt

Asp Ser Met Ile Gln Ser Thr Ala Ala Asp Tyr Asn Phe Ile Asn Asp  
305 310 315 320

Met Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Tyr Thr Gly  
325 330 335

Gly Ser Thr Arg Pro Val Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser  
340 345 350

Arg Gly Val Pro Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly  
355 360 365

Asn Gly Asp Pro Tyr Asn Arg Ala Met Met Thr Ser Phe Asp Thr Thr  
370 375 380

Thr Thr Ala Tyr Asn Val Ile Lys Lys Leu Ala Pro Leu Arg Lys Ser  
385 390 395 400

Asn Pro Ala Ile Ala Tyr Gly Thr Gln Lys Gln Arg Trp Ile Asn Asn  
405 410 415

Asp Val Tyr Ile Tyr Glu Arg Gln Phe Gly Asn Asn Val Ala Leu Val  
420 425 430

Ala Ile Asn Arg Asn Leu Ser Thr Ser Tyr Tyr Ile Thr Gly Leu Tyr  
435 440 445

Thr Ala Leu Pro Ala Gly Thr Tyr Ser Asp Met Leu Gly Gly Leu Leu  
450 455 460

Asn Gly Ser Ser Ile Thr Val Ser Ser Asn Gln Ser Val Thr Pro Phe  
465 470 475 480

Thr Leu Ala Pro Gly Glu Val Ala Val Trp Gln Tyr Val Ser Thr Thr  
485 490 495

Asn Pro Pro Leu Ile Gly His Val Gln Pro Thr Met Thr Lys Ala Gly  
500 505 510

Gln Thr Ile Thr Ile Asp Gly Arg Gly Phe Gly Thr Thr Ala Gly Gln  
515 520 525

Val Leu Phe Gly Thr Thr Pro Ala Thr Ile Val Ser Trp Glu Asp Thr  
530 535 540

Glu Val Lys Val Lys Val Pro Ala Leu Thr Pro Gly Lys Tyr Asn Ile  
545 550 555 560

Thr Leu Lys Thr Ala Ser Gly Val Thr Ser Asn Ser Tyr Asn Asn Ile  
565 570 575

## 10340-WO.ST25.txt

Asn Val Leu Thr Gly Asn Gln Val Cys Val Arg Phe Val Val Asn Asn  
580 585 590

Ala Thr Thr Val Trp Gly Glu Asn Val Tyr Leu Thr Gly Asn Val Ala  
595 600 605

Glu Leu Gly Asn Trp Asp Thr Ser Lys Ala Ile Gly Pro Met Phe Asn  
610 615 620

Gln Val Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Ser Val Pro  
625 630 635 640

Ala Gly Thr Thr Ile Glu Phe Lys Phe Ile Lys Lys Asn Gly Ser Thr  
645 650 655

Val Thr Trp Glu Gly Gly Tyr Asn His Val Tyr Thr Thr Pro Thr Ser  
660 665 670

Gly Thr Ala Thr Val Ile Val Asp Trp Gln Pro  
675 680

<210> 7

<211> 718

<212> PRT

<213> *Bacillus circulans*

<400> 7

Met Phe Gln Met Ala Lys Arg Ala Phe Leu Ser Thr Thr Leu Thr Leu  
1 5 10 15

Gly Leu Leu Ala Gly Ser Ala Leu Pro Phe Leu Pro Ala Ser Ala Val  
20 25 30

Tyr Ala Asp Pro Asp Thr Ala Val Thr Asn Lys Gln Ser Phe Ser Thr  
35 40 45

Asp Val Ile Tyr Gln Val Phe Thr Asp Arg Phe Leu Asp Gly Asn Pro  
50 55 60

Ser Asn Asn Pro Thr Gly Ala Ala Tyr Asp Ala Thr Cys Ser Asn Leu  
65 70 75 80

Lys Leu Tyr Cys Gly Gly Asp Trp Gln Gly Leu Ile Asn Lys Ile Asn  
85 90 95

Asp Asn Tyr Phe Ser Asp Leu Gly Val Thr Ala Leu Trp Ile Ser Gln  
100 105 110

Pro Val Glu Asn Ile Phe Ala Thr Ile Asn Tyr Ser Gly Val Thr Asn  
115 120 125

## 10340-WO.ST25.txt

Thr Ala Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Lys Thr Asn Pro  
130 135 140

Tyr Phe Gly Thr Met Ala Asp Phe Gln Asn Leu Ile Thr Thr Ala His  
145 150 155 160

Ala Lys Gly Ile Lys Ile Val Ile Asp Phe Ala Pro Asn His Thr Ser  
165 170 175

Pro Ala Met Glu Thr Asp Thr Ser Phe Ala Glu Asn Gly Arg Leu Tyr  
180 185 190

Asp Asn Gly Thr Leu Val Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr  
195 200 205

Phe His His Asn Gly Gly Ser Asp Phe Ser Ser Leu Glu Asn Gly Ile  
210 215 220

Tyr Lys Asn Leu Tyr Asp Leu Ala Asp Phe Asn His Asn Asn Ala Thr  
225 230 235 240

Ile Asp Lys Tyr Phe Lys Asp Ala Ile Lys Leu Trp Leu Asp Met Gly  
245 250 255

Val Asp Gly Ile Arg Val Asp Ala Val Lys His Met Pro Leu Gly Trp  
260 265 270

Gln Lys Ser Trp Met Ser Ser Ile Tyr Ala His Lys Pro Val Phe Thr  
275 280 285

Phe Gly Glu Trp Phe Leu Gly Ser Ala Ala Ser Asp Ala Asp Asn Thr  
290 295 300

Asp Phe Ala Asn Lys Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Asn  
305 310 315 320

Ser Ala Val Arg Asn Val Phe Arg Asp Asn Thr Ser Asn Met Tyr Ala  
325 330 335

Leu Asp Ser Met Ile Asn Ser Thr Ala Thr Asp Tyr Asn Gln Val Asn  
340 345 350

Asp Gln Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Lys Thr  
355 360 365

Ser Ala Val Asn Asn Arg Arg Leu Glu Gln Ala Leu Ala Phe Thr Leu  
370 375 380

Thr Ser Arg Gly Val Pro Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Leu  
385 390 395 400

## 10340-WO.ST25.txt

Thr Gly Asn Gly Asp Pro Asp Asn Arg Ala Lys Met Pro Ser Phe Ser  
405 410 415

Lys Ser Thr Thr Ala Phe Asn Val Ile Ser Lys Leu Ala Pro Leu Arg  
420 425 430

Lys Ser Asn Pro Ala Ile Ala Tyr Gly Ser Thr Gln Gln Arg Trp Ile  
435 440 445

Asn Asn Asp Val Tyr Val Tyr Glu Arg Lys Phe Gly Lys Ser Val Ala  
450 455 460

Val Val Ala Val Asn Arg Asn Leu Ser Thr Ser Ala Ser Ile Thr Gly  
465 470 475 480

Leu Ser Thr Ser Leu Pro Thr Gly Ser Tyr Thr Asp Val Leu Gly Gly  
485 490 495

Val Leu Asn Gly Asn Asn Ile Thr Ser Thr Asn Gly Ser Ile Asn Asn  
500 505 510

Phe Thr Leu Ala Ala Gly Ala Thr Ala Val Trp Gln Tyr Thr Thr Ala  
515 520 525

Glu Thr Thr Pro Thr Ile Gly His Val Gly Pro Val Met Gly Lys Pro  
530 535 540

Gly Asn Val Val Thr Ile Asp Gly Arg Gly Phe Gly Ser Thr Lys Gly  
545 550 555 560

Thr Val Tyr Phe Gly Thr Thr Ala Val Thr Gly Ala Ala Ile Thr Ser  
565 570 575

Trp Glu Asp Thr Gln Ile Lys Val Thr Ile Pro Ser Val Ala Ala Gly  
580 585 590

Asn Tyr Ala Val Lys Val Ala Ala Ser Gly Val Asn Ser Asn Ala Tyr  
595 600 605

Asn Asn Phe Thr Ile Leu Thr Gly Asp Gln Val Thr Val Arg Phe Val  
610 615 620

Val Asn Asn Ala Ser Thr Thr Leu Gly Gln Asn Leu Tyr Leu Thr Gly  
625 630 635 640

Asn Val Ala Glu Leu Gly Asn Trp Ser Thr Gly Ser Thr Ala Ile Gly  
645 650 655

Pro Ala Phe Asn Gln Val Ile His Gln Tyr Pro Thr Trp Tyr Tyr Asp  
660 665 670

## 10340-WO.ST25.txt

Val Ser Val Pro Ala Gly Lys Gln Leu Glu Phe Lys Phe Phe Lys Lys  
675 680 685

Asn Gly Ser Thr Ile Thr Trp Glu Ser Gly Ser Asn His Thr Phe Thr  
690 695 700

Thr Pro Ala Ser Gly Thr Ala Thr Val Thr Val Asn Trp Gln  
705 710 715

<210> 8  
<211> 718  
<212> PRT  
<213> Bacillus sp. 38-2

<400> 8

Met Phe Gln Met Ala Lys Arg Val Leu Leu Ser Thr Thr Leu Thr Phe  
1 5 10 15

Ser Leu Leu Ala Gly Ser Ala Leu Pro Phe Leu Pro Ala Ser Ala Ile  
20 25 30

Tyr Ala Asp Ala Asp Thr Ala Val Thr Asn Lys Gln Asn Phe Ser Thr  
35 40 45

Asp Val Ile Tyr Gln Val Phe Thr Asp Arg Phe Leu Asp Gly Asn Pro  
50 55 60

Ser Asn Asn Pro Thr Gly Ala Ala Phe Asp Gly Thr Cys Ser Asn Leu  
65 70 75 80

Lys Leu Tyr Cys Gly Gly Asp Trp Gln Gly Leu Val Asn Lys Ile Asn  
85 90 95

Asp Asn Tyr Phe Ser Asp Leu Gly Val Thr Ala Leu Trp Ile Ser Gln  
100 105 110

Pro Val Glu Asn Ile Phe Ala Thr Ile Asn Tyr Ser Gly Val Thr Asn  
115 120 125

Thr Ala Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Lys Thr Asn Pro  
130 135 140

Tyr Phe Gly Thr Met Thr Asp Phe Gln Asn Leu Val Thr Thr Ala His  
145 150 155 160

Ala Lys Gly Ile Lys Ile Ile Asp Phe Ala Pro Asn His Thr Ser  
165 170 175

Pro Ala Met Glu Thr Asp Thr Ser Phe Ala Glu Asn Gly Lys Leu Tyr  
180 185 190

10340-WO-ST25.txt

Asp Asn Gly Asn Leu Val Gly Gly Tyr Thr Asn Asp Thr Asn Gly Tyr  
195 200 205

Phe His His Asn Gly Gly Ser Asp Phe Ser Thr Leu Glu Asn Gly Ile  
210 215 220

Tyr Lys Asn Leu Tyr Asp Leu Ala Asp Leu Asn His Asn Asn Ser Thr  
225 230 235 240

Ile Asp Thr Tyr Phe Lys Asp Ala Ile Lys Leu Trp Leu Asp Met Gly  
245 250 255

Val Asp Gly Ile Arg Val Asp Ala Val Lys His Met Pro Gln Gly Trp  
260 265 270

Gln Lys Asn Trp Met Ser Ser Ile Tyr Ala His Lys Pro Val Phe Thr  
275 280 285

Phe Gly Glu Trp Phe Leu Gly Ser Ala Ala Pro Asp Ala Asp Asn Thr  
290 295 300

Asp Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Asn  
305 310 315 320

Ser Ala Val Arg Asn Val Phe Arg Asp Asn Thr Ser Asn Met Tyr Ala  
325 330 335

Leu Asp Ser Met Leu Thr Ala Thr Ala Ala Asp Tyr Asn Gln Val Asn  
340 345 350

Asp Gln Val Thr Phe Ile Asp Asn His Asp Met Asp Arg Phe Lys Thr  
355 360 365

Ser Ala Val Asn Asn Arg Arg Leu Glu Gln Ala Leu Ala Phe Thr Leu  
370 375 380

Thr Ser Arg Gly Val Pro Ala Ile Tyr Tyr Gly Thr Glu Gln Tyr Leu  
385 390 395 400

Thr Gly Asn Gly Asp Pro Asp Asn Arg Gly Lys Met Pro Ser Phe Ser  
405 410 415

Lys Ser Thr Thr Ala Phe Asn Val Ile Ser Lys Leu Ala Pro Leu Arg  
420 425 430

Lys Ser Asn Pro Ala Ile Ala Tyr Gly Ser Thr Gln Gln Arg Trp Ile  
435 440 445

Asn Asn Asp Val Tyr Ile Tyr Glu Arg Lys Phe Gly Lys Ser Val Ala  
450 455 460

10340-WO.ST25.txt

Val	Val	Ala	Val	Asn	Arg	Asn	Leu	Thr	Thr	Pro	Thr	Ser	Ile	Thr	Asn
465				470				475					480		
Leu Asn Thr Ser Leu Pro Ser Gly Thr Tyr Thr Asp Val Leu Gly Gly															
			485				490					495			
Val Leu Asn Gly Asn Asn Ile Thr Ser Ser Gly Gly Asn Ile Ser Ser															
			500				505					510			
Phe Thr Leu Ala Ala Gly Ala Thr Ala Val Trp Gln Tyr Thr Ala Ser															
			515				520					525			
Glu Thr Thr Pro Thr Ile Gly His Val Gly Pro Val Met Gly Lys Pro															
			530				535					540			
Gly Asn Val Val Thr Ile Asp Gly Arg Gly Phe Gly Ser Ala Lys Gly															
			545				550					555			560
Thr Val Tyr Phe Gly Thr Thr Ala Val Thr Gly Ser Ala Ile Thr Ser															
			565				570					575			
Trp Glu Asp Thr Gln Ile Lys Val Thr Ile Pro Pro Val Ala Gly Gly															
			580				585					590			
Asp Tyr Ala Val Lys Val Ala Ala Asn Gly Val Asn Ser Asn Ala Tyr															
			595				600					605			
Asn Asp Phe Thr Ile Leu Ser Gly Asp Gln Val Ser Val Arg Phe Val															
			610				615					620			
Ile Asn Asn Ala Thr Thr Ala Leu Gly Glu Asn Ile Tyr Leu Thr Gly															
			625				630					635			640
Asn Val Ser Glu Leu Gly Asn Trp Thr Thr Gly Ala Ala Ser Ile Gly															
			645				650					655			
Pro Ala Phe Asn Gln Val Ile His Ala Tyr Pro Thr Trp Tyr Tyr Asp															
			660				665					670			
Val Ser Val Pro Ala Gly Lys Gln Leu Glu Phe Lys Phe Phe Lys Lys															
			675				680					685			
Asn Gly Ala Thr Ile Thr Trp Glu Gly Gly Ser Asn His Thr Phe Thr															
			690				695					700			
Thr Pro Thr Ser Gly Thr Ala Thr Val Thr Ile Asn Trp Gln															
			705				710					715			

<210> 9  
<211> 713  
<212> PRT  
<213> Bacillus sp. 1011

## 10340-WO.ST25.txt

&lt;400&gt; 9

Met Lys Arg Phe Met Lys Leu Thr Ala Val Trp Thr Leu Trp Leu Ser  
1 5 10 15

Leu Thr Leu Gly Leu Leu Ser Pro Val His Ala Ala Pro Asp Thr Ser  
20 25 30

Val Ser Asn Lys Gln Asn Phe Ser Thr Asp Val Ile Tyr Gln Ile Phe  
35 40 45

Thr Asp Arg Phe Ser Asp Gly Asn Pro Ala Asn Asn Pro Thr Gly Ala  
50 55 60

Ala Phe Asp Gly Ser Cys Thr Asn Leu Arg Leu Tyr Cys Gly Gly Asp  
65 70 75 80

Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly Tyr Leu Thr Gly Met  
85 90 95

Gly Ile Thr Ala Ile Trp Ile Ser Gln Pro Val Glu Asn Ile Tyr Ser  
100 105 110

Val Ile Asn Tyr Ser Gly Val Asn Asn Thr Ala Tyr His Gly Tyr Trp  
115 120 125

Ala Arg Asp Phe Lys Lys Thr Asn Pro Ala Tyr Gly Thr Met Gln Asp  
130 135 140

Phe Lys Asn Leu Ile Asp Thr Ala His Ala His Asn Ile Lys Val Ile  
145 150 155 160

Ile Asp Phe Ala Pro Asn His Thr Ser Pro Ala Ser Ser Asp Asp Pro  
165 170 175

Ser Phe Ala Glu Asn Gly Arg Leu Tyr Asp Asn Gly Asn Leu Leu Gly  
180 185 190

Gly Tyr Thr Asn Asp Thr Gln Asn Leu Phe His His Tyr Gly Gly Thr  
195 200 205

Asp Phe Ser Thr Ile Glu Asn Gly Ile Tyr Lys Asn Leu Tyr Asp Leu  
210 215 220

Ala Asp Leu Asn His Asn Asn Ser Ser Val Asp Val Tyr Leu Lys Asp  
225 230 235 240

Ala Ile Lys Met Trp Leu Asp Leu Gly Val Asp Gly Ile Arg Val Asp  
245 250 255

Ala Val Lys His Met Pro Phe Gly Trp Gln Lys Ser Phe Met Ala Thr

260 10340-WO.ST25.txt 265 270

Ile Asn Asn Tyr Lys Pro Val Phe Thr Phe Gly Glu Trp Phe Leu Gly  
275 280 285

Val Asn Glu Ile Ser Pro Glu Tyr His Gln Phe Ala Asn Glu Ser Gly  
290 295 300

Met Ser Leu Leu Asp Phe Arg Phe Ala Gln Lys Ala Arg Gln Val Phe  
305 310 315 320

Arg Asp Asn Thr Asp Asn Met Tyr Gly Leu Lys Ala Met Leu Glu Gly  
325 330 335

Ser Glu Val Asp Tyr Ala Gln Val Asn Asp Gln Val Thr Phe Ile Asp  
340 345 350

Asn His Asp Met Glu Arg Phe His Thr Ser Asn Gly Asp Arg Arg Lys  
355 360 365

Leu Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser Arg Gly Val Pro Ala  
370 375 380

Ile Tyr Tyr Gly Ser Glu Gln Tyr Met Ser Gly Gly Asn Asp Pro Asp  
385 390 395 400

Asn Arg Ala Arg Leu Pro Ser Phe Ser Thr Thr Thr Ala Tyr Gln  
405 410 415

Val Ile Gln Lys Leu Ala Pro Leu Arg Lys Ser Asn Pro Ala Ile Ala  
420 425 430

Tyr Gly Ser Thr His Glu Arg Trp Ile Asn Asn Asp Val Ile Ile Tyr  
435 440 445

Glu Arg Lys Phe Gly Asn Asn Val Ala Val Val Ala Ile Asn Arg Asn  
450 455 460

Met Asn Thr Pro Ala Ser Ile Thr Gly Leu Val Thr Ser Leu Arg Arg  
465 470 475 480

Ala Ser Tyr Asn Asp Val Leu Gly Gly Ile Leu Asn Gly Asn Thr Leu  
485 490 495

Thr Val Gly Ala Gly Gly Ala Ala Ser Asn Phe Thr Leu Ala Pro Gly  
500 505 510

Gly Thr Ala Val Trp Gln Tyr Thr Thr Asp Ala Thr Thr Pro Ile Ile  
515 520 525

Gly Asn Val Gly Pro Met Met Ala Lys Pro Gly Val Thr Ile Thr Ile  
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10340-WO.ST25.txt  
530                535                540

Asp Gly Arg Gly Phe Gly Ser Gly Lys Gly Thr Val Tyr Phe Gly Thr  
545                550                555                560

Thr Ala Val Thr Gly Ala Asp Ile Val Ala Trp Glu Asp Thr Gln Ile  
565                570                575

Gln Val Lys Ile Pro Ala Val Pro Gly Gly Ile Tyr Asp Ile Arg Val  
580                585                590

Ala Asn Ala Ala Gly Ala Ala Ser Asn Ile Tyr Asp Asn Phe Glu Val  
595                600                605

Leu Thr Gly Asp Gln Val Thr Val Arg Phe Val Ile Asn Asn Ala Thr  
610                615                620

Thr Ala Leu Gly Gln Asn Val Phe Leu Thr Gly Asn Val Ser Glu Leu  
625                630                635                640

Gly Asn Trp Asp Pro Asn Asn Ala Ile Gly Pro Met Tyr Asn Gln Val  
645                650                655

Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Ser Val Pro Ala Gly  
660                665                670

Gln Thr Ile Glu Phe Lys Phe Leu Lys Lys Gln Gly Ser Thr Val Thr  
675                680                685

Trp Glu Gly Gly Ala Asn Arg Thr Phe Thr Thr Pro Thr Ser Gly Thr  
690                695                700

Ala Thr Val Asn Val Asn Trp Gln Pro  
705                710

<210> 10  
<211> 712  
<212> PRT  
<213> Bacillus sp. 38-2

<400> 10

Met Lys Arg Phe Met Lys Leu Thr Ala Val Trp Thr Leu Trp Leu Ser  
1                5                10                15

Leu Thr Leu Gly Leu Leu Ser Pro Val His Ala Ala Pro Asp Thr Ser  
20                25                30

Val Ser Asn Lys Gln Asn Phe Ser Thr Asp Val Ile Tyr Gln Ile Phe  
35                40                45

Thr Asp Arg Phe Ser Asp Gly Asn Pro Ala Asn Asn Pro Thr Gly Ala  
50                55                60

## 10340-WO.ST25.txt

Ala Phe Asp Gly Ser Cys Thr Asn Leu Arg Leu Tyr Cys Gly Gly Asp  
65 70 75 80

Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly Tyr Leu Thr Gly Met  
85 90 95

Gly Ile Thr Ala Ile Trp Ile Ser Gln Pro Val Glu Asn Ile Tyr Ser  
100 105 110

Val Ile Asn Tyr Ser Gly Val His Asn Thr Ala Tyr His Gly Tyr Trp  
115 120 125

Ala Arg Asp Phe Lys Lys Thr Asn Pro Ala Tyr Gly Thr Met Gln Asp  
130 135 140

Phe Lys Asn Leu Ile Asp Thr Ala His Ala His Asn Ile Lys Val Ile  
145 150 155 160

Ile Asp Phe Ala Pro Asn His Thr Ser Pro Ala Ser Ser Asp Asp Pro  
165 170 175

Ser Phe Ala Glu Asn Gly Arg Leu Tyr Asp Asn Gly Asn Leu Leu Gly  
180 185 190

Gly Tyr Thr Asn Asp Thr Gln Asn Leu Phe His His Tyr Gly Gly Thr  
195 200 205

Asp Phe Ser Thr Ile Glu Asn Gly Ile Tyr Lys Asn Leu Tyr Asp Leu  
210 215 220

Ala Asp Leu Asn His Asn Asn Ser Ser Val Asp Val Tyr Leu Lys Asp  
225 230 235 240

Ala Ile Lys Met Trp Leu Asp Leu Gly Val Asp Gly Ile Arg Val Asp  
245 250 255

Ala Val Lys His Met Pro Phe Gly Trp Gln Lys Ser Phe Met Ser Thr  
260 265 270

Ile Asn Asn Tyr Lys Pro Val Phe Asn Phe Gly Glu Trp Phe Leu Gly  
275 280 285

Val Asn Glu Ile Ser Pro Glu Tyr His Gln Phe Ala Asn Glu Ser Gly  
290 295 300

Met Ser Leu Leu Asp Phe Pro Phe Ala Gln Lys Ala Arg Gln Val Phe  
305 310 315 320

Arg Asp Asn Thr Asp Asn Met Tyr Gly Leu Lys Ala Met Leu Glu Gly  
325 330 335

## 10340-WO.ST25.txt

Ser Glu Val Asp Tyr Ala Gln Val Asn Asp Gln Val Thr Phe Ile Asp  
340 345 350

Asn His Asp Met Glu Arg Phe His Thr Ser Asn Gly Asp Arg Arg Lys  
355 360 365

Leu Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser Arg Gly Val Pro Ala  
370 375 380

Ile Tyr Tyr Gly Ser Glu Gln Tyr Met Ser Gly Gly Asn Asp Pro Asp  
385 390 395 400

Asn Arg Ala Arg Ile Pro Ser Phe Ser Thr Thr Thr Ala Tyr Gln  
405 410 415

Val Ile Gln Lys Leu Ala Pro Leu Arg Lys Ser Asn Pro Ala Ile Ala  
420 425 430

Tyr Gly Ser Thr Gln Glu Arg Trp Ile Asn Asn Asp Val Ile Ile Tyr  
435 440 445

Glu Arg Lys Phe Gly Asn Asn Val Ala Val Val Ala Ile Asn Arg Asn  
450 455 460

Met Asn Thr Pro Ala Ser Ile Thr Gly Leu Val Thr Ser Leu Pro Gln  
465 470 475 480

Gly Ser Tyr Asn Asp Val Leu Gly Gly Ile Leu Asn Gly Asn Thr Leu  
485 490 495

Thr Val Gly Ala Gly Ala Ala Ser Asn Phe Thr Leu Ala Pro Gly  
500 505 510

Gly Thr Ala Val Trp Gln Tyr Thr Thr Asp Ala Thr Ala Pro Ile Asn  
515 520 525

Gly Asn Val Gly Pro Met Met Ala Lys Ala Gly Val Thr Ile Thr Ile  
530 535 540

Asp Gly Arg Ala Ser Ala Arg Gln Gly Thr Val Tyr Phe Gly Thr Thr  
545 550 555 560

Ala Val Thr Gly Ala Asp Ile Val Ala Trp Glu Asp Thr Gln Ile Gln  
565 570 575

Val Lys Ile Leu Arg Val Pro Gly Gly Ile Tyr Asp Ile Arg Val Ala  
580 585 590

Asn Ala Ala Gly Ala Ala Ser Asn Ile Tyr Asp Asn Phe Glu Val Leu  
595 600 605

## 10340-WO.ST25.txt

Thr Gly Asp Gln Val Thr Val Arg Phe Val Ile Asn Asn Ala Thr Thr  
610 615 620

Ala Leu Gly Gln Asn Val Phe Leu Thr Gly Asn Val Ser Glu Leu Gly  
625 630 635 640

Asn Trp Asp Pro Asn Asn Ala Ile Gly Pro Met Tyr Asn Gln Val Val  
645 650 655

Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val Ser Val Pro Ala Gly Gln  
660 665 670

Thr Ile Glu Phe Lys Phe Leu Lys Lys Gln Gly Ser Thr Val Thr Trp  
675 680 685

Glu Gly Gly Ala Asn Arg Thr Phe Thr Thr Pro Thr Ser Gly Thr Ala  
690 695 700

Thr Val Asn Val Asn Trp Gln Pro  
705 710

<210> 11  
<211> 713  
<212> PRT  
<213> *Bacillus circulans*  
<400> 11

Met Lys Lys Phe Leu Lys Ser Thr Ala Ala Leu Ala Leu Gly Leu Ser  
1 5 10 15

Leu Thr Phe Gly Leu Phe Ser Pro Ala Gln Ala Ala Pro Asp Thr Ser  
20 25 30

Val Ser Asn Lys Gln Asn Phe Ser Thr Asp Val Ile Tyr Gln Ile Phe  
35 40 45

Thr Asp Arg Phe Ser Asp Gly Asn Pro Ala Asn Asn Pro Thr Gly Ala  
50 55 60

Ala Phe Asp Gly Thr Cys Thr Asn Leu Arg Leu Tyr Cys Gly Gly Asp  
65 70 75 80

Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly Tyr Leu Thr Gly Met  
85 90 95

Gly Val Thr Ala Ile Trp Ile Ser Gln Pro Val Glu Asn Ile Tyr Ser  
100 105 110

Ile Ile Asn Tyr Ser Gly Val Asn Asn Thr Ala Tyr His Gly Tyr Trp  
115 120 125

## 10340-WO.ST25.txt

Ala Arg Asp Phe Lys Lys Thr Asn Pro Ala Tyr Gly Thr Ile Ala Asp  
130 135 140

Phe Gln Asn Leu Ile Ala Ala Ala His Ala Lys Asn Ile Lys Val Ile  
145 150 155 160

Ile Asp Phe Ala Pro Asn His Thr Ser Pro Ala Ser Ser Asp Gln Pro  
165 170 175

Ser Phe Ala Glu Asn Gly Arg Leu Tyr Asp Asn Gly Thr Leu Leu Gly  
180 185 190

Gly Tyr Thr Asn Asp Thr Gln Asn Leu Phe His His Asn Gly Gly Thr  
195 200 205

Asp Phe Ser Thr Thr Glu Asn Gly Ile Tyr Lys Asn Leu Tyr Asp Leu  
210 215 220

Ala Asp Leu Asn His Asn Asn Ser Thr Val Asp Val Tyr Leu Lys Asp  
225 230 235 240

Ala Ile Lys Met Trp Leu Asp Leu Gly Ile Asp Gly Ile Arg Met Asp  
245 250 255

Ala Val Lys His Met Pro Phe Gly Trp Gln Lys Ser Phe Met Ala Ala  
260 265 270

Val Asn Asn Tyr Lys Pro Val Phe Thr Phe Gly Glu Trp Phe Leu Gly  
275 280 285

Val Asn Glu Val Ser Pro Glu Asn His Lys Phe Ala Asn Glu Ser Gly  
290 295 300

Met Ser Leu Leu Asp Phe Arg Phe Ala Gln Lys Val Arg Gln Val Phe  
305 310 315 320

Arg Asp Asn Thr Asp Asn Met Tyr Gly Leu Lys Ala Met Leu Glu Gly  
325 330 335

Ser Ala Ala Asp Tyr Ala Gln Val Asp Asp Gln Val Thr Phe Ile Asp  
340 345 350

Asn His Asp Met Glu Arg Phe His Ala Ser Asn Ala Asn Arg Arg Lys  
355 360 365

Leu Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser Arg Gly Val Pro Ala  
370 375 380

Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Ser Gly Gly Thr Asp Pro Asp  
385 390 395 400

## 10340-WO.ST25.txt

Asn Arg Ala Arg Ile Pro Ser Phe Ser Thr Ser Thr Thr Ala Tyr Gln  
405 410 415

Val Ile Gln Lys Leu Ala Pro Leu Arg Lys Cys Asn Pro Ala Ile Ala  
420 425 430

Tyr Gly Ser Thr Gln Glu Arg Trp Ile Asn Asn Asp Val Leu Ile Tyr  
435 440 445

Glu Arg Lys Phe Gly Ser Asn Val Ala Val Val Ala Val Asn Arg Asn  
450 455 460

Leu Asn Ala Pro Ala Ser Ile Ser Gly Leu Val Thr Ser Leu Pro Gln  
465 470 475 480

Gly Ser Tyr Asn Asp Val Leu Gly Gly Leu Leu Asn Gly Asn Thr Leu  
485 490 495

Ser Val Gly Ser Gly Gly Ala Ala Ser Asn Phe Thr Leu Ala Ala Gly  
500 505 510

Gly Thr Ala Val Trp Gln Tyr Thr Ala Ala Thr Ala Thr Pro Thr Ile  
515 520 525

Gly His Val Gly Pro Met Met Ala Lys Pro Gly Val Thr Ile Thr Ile  
530 535 540

Asp Gly Arg Gly Phe Gly Ser Ser Lys Gly Thr Val Tyr Phe Gly Thr  
545 550 555 560

Thr Ala Val Ser Gly Ala Asp Ile Thr Ser Trp Glu Asp Thr Gln Ile  
565 570 575

Lys Val Lys Ile Pro Ala Val Ala Gly Gly Asn Tyr Asn Ile Lys Val  
580 585 590

Ala Asn Ala Ala Gly Thr Ala Ser Asn Val Tyr Asp Asn Phe Glu Val  
595 600 605

Leu Ser Gly Asp Gln Val Ser Val Arg Phe Val Val Asn Asn Ala Thr  
610 615 620

Thr Ala Leu Gly Gln Asn Val Tyr Leu Thr Gly Ser Val Ser Glu Leu  
625 630 635 640

Gly Asn Trp Asp Pro Ala Lys Ala Ile Gly Pro Met Tyr Asn Gln Val  
645 650 655

Val Tyr Gln Tyr Pro Asn Trp Tyr Tyr Asp Val Ser Val Pro Ala Gly  
660 665 670

## 10340-WO.ST25.txt

Lys Thr Ile Glu Phe Lys Phe Leu Lys Lys Gln Gly Ser Thr Val Thr  
 675 680 685

Trp Glu Gly Gly Ser Asn His Thr Phe Thr Ala Pro Ser Ser Gly Thr  
 690 695 700

Ala Thr Ile Asn Val Asn Trp Gln Pro  
 705 710

<210> 12  
 <211> 686  
 <212> PRT  
 <213> Bacillus sp.

<400> 12

Ala Pro Asp Thr Ser Val Ser Asn Lys Gln Asn Phe Ser Thr Asp Val  
 1 5 10 15

Ile Tyr Gln Ile Phe Thr Asp Arg Phe Ser Asp Gly Asn Pro Ala Asn  
 20 25 30

Asn Pro Thr Gly Ala Ala Phe Asp Gly Ser Cys Thr Asn Leu Arg Leu  
 35 40 45

Tyr Cys Gly Gly Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly  
 50 55 60

Tyr Leu Thr Gly Met Gly Ile Thr Ala Ile Trp Ile Ser Gln Pro Val  
 65 70 75 80

Glu Asn Ile Tyr Ser Val Ile Asn Tyr Ser Gly Val Asn Asn Thr Ala  
 85 90 95

Tyr His Gly Tyr Trp Ala Arg Asp Phe Lys Lys Thr Asn Pro Ala Tyr  
 100 105 110

Gly Thr Met Gln Asp Phe Lys Asn Leu Ile Asp Thr Ala His Ala His  
 115 120 125

Asn Ile Lys Val Ile Ile Asp Phe Ala Pro Asn His Thr Ser Pro Ala  
 130 135 140

Ser Ser Asp Asp Pro Ser Phe Ala Glu Asn Gly Arg Leu Tyr Asp Asn  
 145 150 155 160

Gly Asn Leu Leu Gly Gly Tyr Thr Asn Asp Thr Gln Asn Leu Phe His  
 165 170 175

His Tyr Gly Gly Thr Asp Phe Ser Thr Ile Glu Asn Gly Ile Tyr Lys  
 180 185 190

10340-WO-ST25.txt

Asn Leu Tyr Asp Leu Ala Asp Leu Asn His Asn Asn Ser Ser Val Asp  
195 200 205

Val Tyr Leu Lys Asp Ala Ile Lys Met Trp Leu Asp Leu Gly Val Asp  
210 215 220

Gly Ile Arg Val Asp Ala Val Lys His Met Pro Phe Gly Trp Gln Lys  
225 230 235 240

Ser Phe Met Ser Thr Ile Asn Asn Tyr Lys Pro Val Phe Thr Phe Gly  
245 250 255

Glu Trp Phe Leu Gly Val Asn Glu Ile Ser Pro Glu Tyr His Gln Phe  
260 265 270

Ala Asn Glu Ser Gly Met Ser Leu Leu Asp Phe Arg Phe Ala Gln Lys  
275 280 285

Ala Arg Gln Val Phe Arg Asp Asn Thr Asp Asn Met Tyr Gly Leu Lys  
290 295 300

Ala Met Leu Glu Gly Ser Glu Val Asp Tyr Ala Gln Val Asn Asp Gln  
305 310 315 320

Val Thr Phe Ile Asp Asn His Asp Met Glu Arg Phe His Thr Ser Asn  
325 330 335

Gly Asp Arg Arg Lys Leu Glu Gln Ala Leu Ala Phe Thr Leu Thr Ser  
340 345 350

Arg Gly Val Pro Ala Ile Tyr Tyr Gly Ser Glu Gln Tyr Met Ser Gly  
355 360 365

Gly Asn Asp Pro Asp Asn Arg Ala Arg Ile Pro Ser Phe Ser Thr Thr  
370 375 380

Thr Thr Ala Tyr Gln Val Ile Gln Lys Leu Ala Pro Leu Arg Lys Ser  
385 390 395 400

Asn Pro Ala Ile Ala Tyr Gly Ser Thr Gln Glu Arg Trp Ile Asn Asn  
405 410 415

Asp Val Ile Ile Tyr Glu Arg Lys Phe Gly Asn Asn Val Ala Val Val  
420 425 430

Ala Ile Asn Arg Asn Met Asn Thr Pro Ala Ser Ile Thr Gly Leu Val  
435 440 445

Thr Ser Leu Pro Gln Gly Ser Tyr Asn Asp Val Leu Gly Gly Ile Leu  
450 455 460

## 10340-WO-ST25.txt

Asn Gly Asn Thr Leu Thr Val Gly Ala Gly Gly Ala Ala Ser Asn Phe  
 465 470 475 480

Thr Leu Ala Pro Gly Gly Thr Ala Val Trp Gln Tyr Thr Thr Asp Ala  
 485 490 495

Thr Ala Pro Ile Ile Gly Asn Val Gly Pro Met Met Ala Lys Pro Gly  
 500 505 510

Val Thr Ile Thr Ile Asp Gly Arg Gly Phe Gly Ser Gly Lys Gly Thr  
 515 520 525

Val Tyr Phe Gly Thr Thr Ala Val Thr Gly Ala Asp Ile Val Ala Trp  
 530 535 540

Glu Asp Thr Gln Ile Gln Val Lys Ile Pro Ala Val Pro Gly Gly Ile  
 545 550 555 560

Tyr Asp Ile Arg Val Ala Asn Ala Ala Gly Ala Ala Ser Asn Ile Tyr  
 565 570 575

Asp Asn Phe Glu Val Leu Thr Gly Asp Gln Val Thr Val Arg Phe Val  
 580 585 590

Ile Asn Asn Ala Thr Thr Ala Leu Gly Gln Asn Val Phe Leu Thr Gly  
 595 600 605

Asn Val Ser Glu Leu Gly Asn Trp Asp Pro Asn Asn Ala Ile Gly Pro  
 610 615 620 640

Met Tyr Asn Gln Val Val Tyr Gln Tyr Pro Thr Trp Tyr Tyr Asp Val  
 625 630 635 640

Ser Val Pro Ala Gly Gln Thr Ile Glu Phe Lys Phe Leu Lys Lys Gln  
 645 650 655

Gly Ser Thr Val Thr Trp Glu Gly Gly Ala Asn Arg Thr Phe Thr Thr  
 660 665 670

Pro Thr Ser Gly Thr Ala Thr Met Asn Val Asn Trp Gln Pro  
 675 680 685

<210> 13

<211> 704

<212> PRT

<213> Bacillus ohbensis

<400> 13

Met Lys Asn Leu Thr Val Leu Leu Lys Thr Ile Pro Leu Ala Leu Leu  
 1 5 10 15

Leu Phe Ile Leu Leu Ser Leu Pro Thr Ala Ala Gln Ala Asp Val Thr  
 Page 33

10340-WO.ST25.txt  
20 25 30

Asn Lys Val Asn Tyr Thr Arg Asp Val Ile Tyr Gln Ile Val Thr Asp  
35 40 45

Arg Phe Ser Asp Gly Asp Pro Ser Asn Asn Pro Thr Gly Ala Ile Tyr  
50 55 60

Ser Gln Asp Cys Ser Asp Leu His Lys Tyr Cys Gly Gly Asp Trp Gln  
65 70 75 80

Gly Ile Ile Asp Lys Ile Asn Asp Gly Tyr Leu Thr Asp Leu Gly Ile  
85 90 95

Thr Ala Ile Trp Ile Ser Gln Pro Val Glu Asn Val Tyr Ala Leu His  
100 105 110

Pro Ser Gly Tyr Thr Ser Tyr His Gly Tyr Trp Ala Arg Asp Tyr Lys  
115 120 125

Arg Thr Asn Pro Phe Tyr Gly Asp Phe Ser Asp Phe Asp Arg Leu Met  
130 135 140

Asp Thr Ala His Ser Asn Gly Ile Lys Val Ile Met Asp Phe Thr Pro  
145 150 155 160

Asn His Ser Ser Pro Ala Leu Glu Thr Asp Pro Ser Tyr Ala Glu Asn  
165 170 175

Gly Ala Val Tyr Asn Asp Gly Val Leu Ile Gly Asn Tyr Ser Asn Asp  
180 185 190

Pro Asn Asn Leu Phe His His Asn Gly Gly Thr Asp Phe Ser Ser Tyr  
195 200 205

Glu Asp Ser Ile Tyr Arg Asn Leu Tyr Asp Leu Ala Asp Tyr Asp Leu  
210 215 220

Asn Asn Thr Val Met Asp Gln Tyr Leu Lys Glu Ser Ile Lys Leu Trp  
225 230 235 240

Leu Asp Lys Gly Ile Asp Gly Ile Arg Val Asp Ala Val Lys His Met  
245 250 255

Ser Glu Gly Trp Gln Thr Ser Leu Met Ser Asp Ile Tyr Ala His Glu  
260 265 270

Pro Val Phe Thr Phe Gly Glu Trp Phe Leu Gly Ser Gly Glu Val Asp  
275 280 285

Pro Gln Asn His His Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp  
Page 34

290                  295                  300  
10340-WO.ST25.txt

Phe Gln Phe Gly Gln Thr Ile Arg Asp Val Leu Met Asp Gly Ser Ser  
305                  310                  315                  320

Asn Trp Tyr Asp Phe Asn Glu Met Ile Ala Ser Thr Glu Glu Asp Tyr  
325                  330                  335

Asp Glu Val Ile Asp Gln Val Thr Phe Ile Asp Asn His Asp Met Ser  
340                  345                  350

Arg Phe Ser Phe Glu Gln Ser Ser Asn Arg His Thr Asp Ile Ala Leu  
355                  360                  365

Ala Val Leu Leu Thr Ser Arg Gly Val Pro Thr Ile Tyr Tyr Gly Thr  
370                  375                  380

Glu Gln Tyr Leu Thr Gly Gly Asn Asp Pro Glu Asn Arg Lys Pro Met  
385                  390                  395                  400

Ser Asp Phe Asp Arg Thr Thr Asn Ser Tyr Gln Ile Ile Ser Thr Leu  
405                  410                  415

Ala Ser Leu Arg Gln Asn Asn Pro Ala Leu Gly Tyr Gly Asn Thr Ser  
420                  425                  430

Glu Arg Trp Ile Asn Ser Asp Val Tyr Ile Tyr Glu Arg Ser Phe Gly  
435                  440                  445

Asp Ser Val Val Leu Thr Ala Val Asn Ser Gly Asp Thr Ser Tyr Thr  
450                  455                  460

Ile Asn Asn Leu Asn Thr Ser Leu Pro Gln Gly Gln Tyr Thr Asp Glu  
465                  470                  475                  480

Leu Gln Gln Leu Leu Asp Gly Asn Glu Ile Thr Val Asn Ser Asn Gly  
485                  490                  495

Ala Val Asp Ser Phe Gln Leu Ser Ala Asn Gly Val Ser Val Trp Gln  
500                  505                  510

Ile Thr Glu Glu His Ala Ser Pro Leu Ile Gly His Val Gly Pro Met  
515                  520                  525

Met Gly Lys His Gly Asn Thr Val Thr Ile Thr Gly Glu Gly Phe Gly  
530                  535                  540

Asp Asn Glu Gly Ser Val Leu Phe Asp Ser Asp Phe Ser Asp Val Leu  
545                  550                  555                  560

Ser Trp Ser Asp Thr Lys Ile Glu Val Ser Val Pro Asp Val Thr Ala  
Page 35

## 10340-WO.ST25.txt

565

570

575

Gly His Tyr Asp Ile Ser Val Val Asn Ala Gly Asp Ser Gln Ser Pro  
 580 585 590

Thr Tyr Asp Lys Phe Glu Val Leu Thr Gly Asp Gln Val Ser Ile Arg  
 595 600 605

Phe Ala Val Asn Asn Ala Thr Thr Ser Leu Gly Thr Asn Leu Tyr Met  
 610 615 620

Val Gly Asn Val Asn Glu Leu Gly Asn Trp Asp Pro Asp Gln Ala Ile  
 625 630 635 640

Gly Pro Met Phe Asn Gln Val Met Tyr Gln Tyr Pro Thr Trp Tyr Tyr  
 645 650 655

Asp Ile Ser Val Pro Ala Glu Glu Asn Leu Glu Tyr Lys Phe Ile Lys  
 660 665 670

Lys Asp Ser Ser Gly Asn Val Val Trp Glu Ser Gly Asn Asn His Thr  
 675 680 685

Tyr Thr Thr Pro Ala Thr Gly Thr Asp Thr Val Leu Val Asp Trp Gln  
 690 695 700

&lt;210&gt; 14

&lt;211&gt; 703

&lt;212&gt; PRT

&lt;213&gt; Bacillus sp. 1-1

&lt;400&gt; 14

Met Asn Asp Leu Asn Asp Phe Leu Lys Thr Ile Leu Leu Ser Phe Ile  
 1 5 10 15

Phe Phe Leu Leu Leu Ser Leu Pro Thr Val Ala Glu Ala Asp Val Thr  
 20 25 30

Asn Lys Val Asn Tyr Ser Lys Asp Val Ile Tyr Gln Ile Val Thr Asp  
 35 40 45

Arg Phe Ser Asp Gly Asn Pro Gly Asn Asn Pro Ser Gly Ala Ile Phe  
 50 55 60

Ser Gln Asn Cys Ile Asp Leu His Lys Tyr Cys Gly Gly Asp Trp Gln  
 65 70 75 80

Gly Ile Ile Asp Lys Ile Asn Asp Gly Tyr Leu Thr Asp Leu Gly Ile  
 85 90 95

Thr Ala Leu Trp Ile Ser Gln Pro Val Glu Asn Val Tyr Ala Leu His  
 100 105 110

## 10340-WO.ST25.txt

Pro Ser Gly Tyr Thr Ser Tyr His Gly Tyr Trp Ala Arg Asp Tyr Lys  
115 120 125

Lys Thr Asn Pro Tyr Tyr Gly Asn Phe Asp Asp Phe Asp Arg Leu Met  
130 135 140

Ser Thr Ala His Ser Asn Gly Ile Lys Val Ile Met Asp Phe Thr Pro  
145 150 155 160

Asn His Ser Ser Pro Ala Leu Glu Thr Asn Pro Asn Tyr Val Glu Asn  
165 170 175

Gly Ala Ile Tyr Asp Asn Gly Ala Leu Leu Gly Asn Tyr Ser Asn Asp  
180 185 190

Gln Gln Asn Leu Phe His His Asn Gly Gly Thr Asp Phe Ser Ser Tyr  
195 200 205

Glu Asp Ser Ile Tyr Arg Asn Leu Tyr Asp Leu Ala Asp Tyr Asp Leu  
210 215 220

Asn Asn Thr Val Met Asp Gln Tyr Leu Lys Glu Ser Ile Lys Phe Trp  
225 230 235 240

Leu Asp Lys Gly Ile Asp Gly Ile Arg Val Asp Ala Val Lys His Met  
245 250 255

Ser Glu Gly Trp Gln Thr Ser Leu Met Ser Glu Ile Tyr Ser His Lys  
260 265 270

Pro Val Phe Thr Phe Gly Glu Trp Phe Leu Gly Ser Gly Glu Val Asp  
275 280 285

Pro Gln Asn His His Phe Ala Asn Glu Ser Gly Met Ser Leu Leu Asp  
290 295 300

Phe Gln Phe Gly Gln Thr Ile Arg Asn Val Leu Lys Asp Arg Thr Ser  
305 310 315 320

Asn Trp Tyr Asp Phe Asn Glu Met Ile Thr Ser Thr Glu Lys Glu Tyr  
325 330 335

Asn Glu Val Ile Asp Gln Val Thr Phe Ile Asp Asn His Asp Met Ser  
340 345 350

Arg Phe Ser Val Gly Ser Ser Ser Asn Arg Gln Thr Asp Met Ala Leu  
355 360 365

Ala Val Leu Leu Thr Ser Arg Gly Val Pro Thr Ile Tyr Tyr Gly Thr  
370 375 380

## 10340-WO.ST25.txt

Glu Gln Tyr Val Thr Gly Gly Asn Asp Pro Glu Asn Arg Lys Pro Leu  
385 390 395 400

Lys Thr Phe Asp Arg Ser Thr Asn Ser Tyr Gln Ile Ile Ser Lys Leu  
405 410 415

Ala Ser Leu Arg Gln Thr Asn Ser Ala Leu Gly Tyr Gly Thr Thr Thr  
420 425 430

Glu Arg Trp Leu Asn Glu Asp Ile Tyr Ile Tyr Glu Arg Thr Phe Gly  
435 440 445

Asn Ser Ile Val Leu Thr Ala Val Asn Ser Ser Asn Ser Asn Gln Thr  
450 455 460

Ile Thr Asn Leu Asn Thr Ser Leu Pro Gln Gly Asn Tyr Thr Asp Glu  
465 470 475 480

Leu Gln Gln Arg Leu Asp Gly Asn Thr Ile Thr Val Asn Ala Asn Gly  
485 490 495

Ala Val Asn Ser Phe Gln Leu Arg Ala Asn Ser Val Ala Val Trp Gln  
500 505 510

Val Ser Asn Pro Ser Thr Ser Pro Leu Ile Gly Gln Val Gly Pro Met  
515 520 525

Met Gly Lys Ala Gly Asn Thr Ile Thr Val Ser Gly Glu Gly Phe Gly  
530 535 540

Asp Glu Arg Gly Ser Val Leu Phe Asp Ser Thr Ser Ser Glu Ile Ile  
545 550 555 560

Ser Trp Ser Asn Thr Lys Ile Ser Val Lys Val Pro Asn Val Ala Gly  
565 570 575

Gly Tyr Tyr Asp Leu Ser Val Val Thr Ala Ala Asn Ile Lys Ser Pro  
580 585 590

Thr Tyr Lys Glu Phe Glu Val Leu Ser Gly Asn Gln Val Ser Val Arg  
595 600 605

Phe Gly Val Asn Asn Ala Thr Thr Ser Pro Gly Thr Asn Leu Tyr Ile  
610 615 620

Val Gly Asn Val Asn Glu Leu Gly Asn Trp Asp Ala Asp Lys Ala Ile  
625 630 635 640

Gly Pro Met Phe Asn Gln Val Met Tyr Gln Tyr Pro Thr Trp Tyr Tyr  
645 650 655

## 10340-WO.ST25.txt

Asp Ile Ser Val Pro Ala Gly Lys Asn Leu Glu Tyr Lys Tyr Ile Lys  
660 665 670

Lys Asp Gln Asn Gly Asn Val Val Trp Gln Ser Gly Asn Asn Arg Thr  
675 680 685

Tyr Thr Ser Pro Thr Thr Gly Thr Asp Thr Val Met Ile Asn Trp  
690 695 700

<210> 15

<211> 711

<212> PRT

<213> *Bacillus stearothermophilus*

<400> 15

Met Arg Arg Trp Leu Ser Leu Val Leu Ser Met Ser Phe Val Phe Ser  
1 5 10 15

Ala Ile Phe Ile Val Ser Asp Thr Gln Lys Val Thr Val Glu Ala Ala  
20 25 30

Gly Asn Leu Asn Lys Val Asn Phe Thr Ser Asp Val Val Tyr Gln Ile  
35 40 45

Val Val Asp Arg Phe Val Asp Gly Asn Thr Ser Asn Asn Pro Ser Gly  
50 55 60

Ala Leu Phe Ser Ser Gly Cys Thr Asn Leu Arg Lys Tyr Cys Gly Gly  
65 70 75 80

Asp Trp Gln Gly Ile Ile Asn Lys Ile Asn Asp Gly Tyr Leu Thr Asp  
85 90 95

Met Gly Val Thr Ala Ile Trp Ile Ser Gln Pro Val Glu Asn Val Phe  
100 105 110

Ser Val Met Asn Asp Ala Ser Gly Ser Ala Ser Tyr His Gly Tyr Trp  
115 120 125

Ala Arg Asp Phe Lys Lys Pro Asn Pro Phe Phe Gly Thr Leu Ser Asp  
130 135 140

Phe Gln Arg Leu Val Asp Ala Ala His Ala Lys Gly Ile Lys Val Ile  
145 150 155 160

Ile Asp Phe Ala Pro Asn His Thr Ser Pro Ala Ser Glu Thr Asn Pro  
165 170 175

Ser Tyr Met Glu Asn Gly Arg Leu Tyr Asp Asn Gly Thr Leu Leu Gly  
180 185 190

## 10340-WO.ST25.txt

Gly Tyr Thr Asn Asp Ala Asn Met Tyr Phe His His Asn Gly Gly Thr  
195 200 205

Thr Phe Ser Ser Leu Glu Asp Gly Ile Tyr Arg Asn Leu Phe Asp Leu  
210 215 220

Ala Asp Leu Asn His Gln Asn Pro Val Ile Asp Arg Tyr Leu Lys Asp  
225 230 235 240

Ala Val Lys Met Trp Ile Asp Met Gly Ile Asp Gly Ile Arg Met Asp  
245 250 255

Ala Val Lys His Met Pro Phe Gly Trp Gln Lys Ser Leu Met Asp Glu  
260 265 270

Ile Asp Asn Tyr Arg Pro Val Phe Thr Phe Gly Glu Trp Phe Leu Ser  
275 280 285

Glu Asn Glu Val Asp Ala Asn Asn His Tyr Phe Ala Asn Glu Ser Gly  
290 295 300

Met Ser Leu Leu Asp Phe Arg Phe Gly Gln Lys Leu Arg Gln Val Leu  
305 310 315 320

Arg Asn Asn Ser Asp Asn Trp Tyr Gly Phe Asn Gln Met Ile Gln Asp  
325 330 335

Thr Ala Ser Ala Tyr Asp Glu Val Leu Asp Gln Val Thr Phe Ile Asp  
340 345 350

Asn His Asp Met Asp Arg Phe Met Ile Asp Gly Gly Asp Pro Arg Lys  
355 360 365

Val Asp Met Ala Leu Ala Val Leu Leu Thr Ser Arg Gly Val Pro Asn  
370 375 380

Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Thr Gly Asn Gly Asp Pro Asn  
385 390 395 400

Asn Arg Lys Met Met Ser Ser Phe Asn Lys Asn Thr Arg Ala Tyr Gln  
405 410 415

Val Ile Gln Lys Leu Ser Ser Leu Arg Arg Asn Asn Pro Ala Leu Ala  
420 425 430

Tyr Gly Asp Thr Glu Gln Arg Trp Ile Asn Gly Asp Val Tyr Val Tyr  
435 440 445

Glu Arg Gln Phe Gly Lys Asp Val Val Leu Val Ala Val Asn Arg Ser  
450 455 460

## 10340-WO.ST25.txt

Ser Ser Ser Asn Tyr Ser Ile Thr Gly Leu Phe Thr Ala Leu Pro Ala  
465 470 475 480

Gly Thr Tyr Thr Asp Gln Leu Gly Gly Leu Leu Asp Gly Asn Thr Ile  
485 490 495

Gln Val Gly Ser Asn Gly Ser Val Asn Ala Phe Asp Leu Gly Pro Gly  
500 505 510

Glu Val Gly Val Trp Ala Tyr Ser Ala Thr Glu Ser Thr Pro Ile Ile  
515 520 525

Gly His Val Gly Pro Met Met Gly Gln Val Gly His Gln Val Thr Ile  
530 535 540

Asp Gly Glu Gly Phe Gly Thr Asn Thr Gly Thr Val Lys Phe Gly Thr  
545 550 555 560

Thr Ala Ala Asn Val Val Ser Trp Ser Asn Asn Gln Ile Val Val Ala  
565 570 575

Val Pro Asn Val Ser Pro Gly Lys Tyr Asn Ile Thr Val Gln Ser Ser  
580 585 590

Ser Gly Gln Thr Ser Ala Ala Tyr Asp Asn Phe Glu Val Leu Thr Asn  
595 600 605

Asp Gln Val Ser Val Arg Phe Val Val Asn Asn Ala Thr Thr Asn Leu  
610 615 620

Gly Gln Asn Ile Tyr Ile Val Gly Asn Val Tyr Glu Leu Gly Asn Trp  
625 630 635 640

Asp Thr Ser Lys Ala Ile Gly Pro Met Phe Asn Gln Val Val Tyr Ser  
645 650 655

Tyr Pro Thr Trp Tyr Ile Asp Val Ser Val Pro Glu Gly Lys Thr Ile  
660 665 670

Glu Phe Lys Phe Ile Lys Lys Asp Ser Gln Gly Asn Val Thr Trp Glu  
675 680 685

Ser Gly Ser Asn His Val Tyr Thr Thr Pro Thr Asn Thr Thr Gly Lys  
690 695 700

Ile Ile Val Asp Trp Gln Asn  
705 710

<210> 16  
<211> 655  
<212> PRT

10340-WO.ST25.txt

&lt;213&gt; Klebsiella pneumoniae

&lt;400&gt; 16

Met Lys Arg Asn Arg Phe Phe Asn Thr Ser Ala Ala Ile Ala Ile Ser  
1 5 10 15

Ile Ala Leu Asn Thr Phe Phe Cys Ser Met Gln Thr Ile Ala Ala Glu  
20 25 30

Pro Glu Glu Thr Tyr Leu Asp Phe Arg Lys Glu Thr Ile Tyr Phe Leu  
35 40 45

Phe Leu Asp Arg Phe Ser Asp Gly Asp Pro Ser Asn Asn Ala Gly Phe  
50 55 60

Asn Ser Ala Thr Tyr Asp Pro Asn Asn Leu Lys Lys Tyr Thr Gly Gly  
65 70 75 80

Asp Leu Arg Gly Leu Ile Asn Lys Leu Pro Tyr Leu Lys Ser Leu Gly  
85 90 95

Val Thr Ser Ile Trp Ile Thr Pro Pro Ile Asp Asn Val Asn Asn Thr  
100 105 110

Asp Ala Ala Gly Asn Thr Gly Tyr His Gly Tyr Trp Gly Arg Asp Tyr  
115 120 125

Phe Arg Ile Asp Glu His Phe Gly Asn Leu Asp Asp Phe Lys Glu Leu  
130 135 140

Thr Ser Leu Met His Ser Pro Asp Tyr Asn Met Lys Leu Val Leu Asp  
145 150 155 160

Tyr Ala Pro Asn His Ser Asn Ala Asn Asp Glu Asn Glu Phe Gly Ala  
165 170 175

Leu Tyr Arg Asp Gly Val Phe Ile Thr Asp Tyr Pro Thr Asn Val Ala  
180 185 190

Ala Asn Thr Gly Trp Tyr His His Asn Gly Gly Val Thr Asn Trp Asn  
195 200 205

Asp Phe Phe Gln Val Lys Asn His Asn Leu Phe Asn Leu Ser Asp Leu  
210 215 220

Asn Gln Ser Asn Thr Asp Val Tyr Gln Tyr Leu Leu Asp Gly Ser Lys  
225 230 235 240

Phe Trp Ile Asp Ala Gly Val Asp Ala Ile Arg Ile Asp Ala Ile Lys  
245 250 255

10340-WO.ST25.txt

His Met Asp Lys Ser Phe Ile Gln Lys Trp Thr Ser Asp Ile Tyr Asp  
260 265 270

Tyr Ser Lys Ser Ile Gly Arg Glu Gly Phe Phe Phe Gly Glu Trp  
275 280 285

Phe Gly Ala Ser Ala Asn Thr Thr Gly Val Asp Gly Asn Ala Ile  
290 295 300

Asp Tyr Ala Asn Thr Ser Gly Ser Ala Leu Leu Asp Phe Gly Phe Arg  
305 310 315 320

Asp Thr Leu Glu Arg Val Leu Val Gly Arg Ser Gly Asn Thr Met Lys  
325 330 335

Thr Leu Asn Ser Tyr Leu Ile Lys Arg Gln Thr Val Phe Thr Ser Asp  
340 345 350

Asp Trp Gln Val Val Phe Met Asp Asn His Asp Met Ala Arg Ile Gly  
355 360 365

Thr Ala Leu Arg Ser Asn Ala Thr Thr Phe Gly Pro Gly Asn Asn Glu  
370 375 380

Thr Gly Gly Ser Gln Ser Glu Ala Phe Ala Gln Lys Arg Ile Asp Leu  
385 390 395 400

Gly Leu Val Ala Thr Met Thr Val Arg Gly Ile Pro Ala Ile Tyr Tyr  
405 410 415

Gly Thr Glu His Tyr Ala Ala Asn Phe Thr Ser Asn Ser Phe Gly Gln  
420 425 430

Val Gly Ser Asp Pro Tyr Asn Arg Glu Lys Met Pro Gly Phe Asp Thr  
435 440 445

Glu Ser Glu Ala Phe Ser Ile Ile Lys Thr Leu Gly Asp Leu Arg Lys  
450 455 460

Ser Ser Pro Ala Ile Gln Asn Gly Thr Tyr Thr Glu Leu Trp Val Asn  
465 470 475 480

Asp Asp Ile Leu Val Phe Glu Arg Arg Ser Gly Asn Asp Ile Val Ile  
485 490 495

Val Ala Leu Asn Arg Gly Glu Ala Asn Thr Ile Asn Val Lys Asn Ile  
500 505 510

Ala Val Pro Asn Gly Val Tyr Pro Ser Leu Ile Gly Asn Asn Ser Val  
515 520 525

10340-WO.ST25.txt  
 Ser Val Ala Asn Lys Arg Thr Thr Leu Thr Leu Met Gln Asn Glu Ala  
 530 535 540

Val Val Ile Arg Ser Gln Ser Asp Asp Ala Glu Asn Pro Thr Val Gln  
 545 550 555 560

Ser Ile Asn Phe Thr Cys Asn Asn Gly Tyr Thr Ile Ser Gly Gln Ser  
 565 570 575

Val Tyr Ile Ile Gly Asn Ile Pro Gln Leu Gly Gly Trp Asp Leu Thr  
 580 585 590

Lys Ala Val Lys Ile Ser Pro Thr Gln Tyr Pro Gln Trp Ser Ala Ser  
 595 600 605

Leu Glu Leu Pro Ser Asp Leu Asn Val Glu Trp Lys Cys Val Lys Arg  
 610 615 620

Asn Glu Thr Asn Pro Thr Ala Asn Val Glu Trp Gln Ser Gly Ala Asn  
 625 630 635 640

Asn Gln Phe Asn Ser Asn Asp Thr Gln Thr Thr Asn Gly Ser Phe  
 645 650 655

<210> 17

<211> 686

<212> PRT

<213> **Bacillus stearothermophilus**

<400> 17

Ser Ser Ser Ala Ser Val Lys Gly Asp Val Ile Tyr Gln Ile Ile Ile  
 1 5 10 15

Asp Arg Phe Tyr Asp Gly Asp Thr Thr Asn Asn Asn Pro Ala Lys Ser  
 20 25 30

Tyr Gly Leu Tyr Asp Pro Thr Lys Ser Lys Trp Lys Met Tyr Trp Gly  
 35 40 45

Gly Asp Leu Glu Gly Val Arg Gln Lys Leu Pro Tyr Leu Lys Gln Leu  
 50 55 60

Gly Val Thr Thr Ile Trp Leu Ser Pro Val Leu Asp Asn Leu Asp Thr  
 65 70 75 80

Leu Ala Gly Thr Asp Asn Thr Gly Tyr His Gln Tyr Trp Thr Arg Asp  
 85 90 95

Phe Lys Gln Ile Glu Glu His Phe Gly Asn Trp Thr Thr Phe Asp Thr  
 100 105 110

Leu Val Asn Asp Ala His Gln Asn Gly Ile Lys Val Ile Val Asp Phe

## 10340-WO.ST25.txt

115

120

125

Val Pro Asn His Ser Thr Pro Phe Lys Ala Asn Asp Ser Thr Phe Ala  
130 135 140

Glu Gly Gly Ala Leu Tyr Asn Asn Gly Thr Tyr Met Gly Asn Tyr Phe  
145 150 155 160

Asp Asp Ala Thr Lys Gly Tyr Phe His His Asn Gly Asp Ile Ser Asn  
165 170 175

Trp Asp Asp Arg Tyr Glu Ala Gln Trp Lys Asn Phe Thr Asp Pro Ala  
180 185 190

Gly Phe Ser Leu Ala Asp Leu Ser Gln Glu Asn Gly Thr Ile Ala Gln  
195 200 205

Tyr Leu Thr Asp Ala Ala Val Gln Leu Val Ala His Gly Ala Asp Gly  
210 215 220

Leu Arg Ile Asp Ala Val Lys His Phe Asn Ser Gly Phe Ser Lys Ser  
225 230 235 240

Leu Ala Asp Lys Leu Tyr Gln Lys Lys Asp Ile Phe Leu Val Gly Glu  
245 250 255

Trp Tyr Gly Asp Asp Pro Gly Thr Ala Asn His Leu Glu Lys Val Arg  
260 265 270

Tyr Ala Asn Asn Ser Gly Val Asn Val Leu Asp Phe Asp Leu Asn Thr  
275 280 285

Val Ile Arg Asn Val Phe Gly Thr Phe Thr Gln Thr Met Tyr Asp Leu  
290 295 300

Asn Asn Met Val Asn Gln Thr Gly Asn Glu Tyr Lys Tyr Lys Glu Asn  
305 310 315 320

Leu Ile Thr Phe Ile Asp Asn His Asp Met Ser Arg Phe Leu Ser Val  
325 330 335

Asn Ser Asn Lys Ala Asn Leu His Gln Ala Leu Ala Phe Ile Leu Thr  
340 345 350

Ser Arg Gly Thr Pro Ser Ile Tyr Tyr Gly Thr Glu Gln Tyr Met Ala  
355 360 365

Gly Gly Asn Asp Pro Tyr Asn Arg Gly Met Met Pro Ala Phe Asp Thr  
370 375 380

Thr Thr Thr Ala Phe Lys Glu Val Ser Thr Leu Ala Gly Leu Arg Arg

385                   390                   395                   400  
10340-WO.ST25.txt

Asn Asn Ala Ala Ile Gln Tyr Gly Thr Thr Thr Gln Arg Trp Ile Asn  
405                   410                   415

Asn Asp Val Tyr Ile Tyr Glu Arg Lys Phe Phe Asn Asp Val Val Leu  
420                   425                   430

Val Ala Ile Asn Arg Asn Thr Gln Ser Ser Tyr Ser Ile Ser Gly Leu  
435                   440                   445

Gln Thr Ala Leu Pro Asn Gly Ser Tyr Ala Asp Tyr Leu Ser Gly Leu  
450                   455                   460

Leu Gly Gly Asn Gly Ile Ser Val Ser Asn Gly Ser Val Ala Ser Phe  
465                   470                   475                   480

Thr Leu Ala Pro Gly Ala Val Ser Val Trp Gln Tyr Ser Thr Ser Ala  
485                   490                   495

Ser Ala Pro Gln Ile Gly Ser Val Ala Pro Asn Met Gly Ile Pro Gly  
500                   505                   510

Asn Val Val Thr Ile Asp Gly Lys Gly Phe Gly Thr Thr Gln Gly Thr  
515                   520                   525

Val Thr Phe Gly Gly Val Thr Ala Thr Val Lys Ser Trp Thr Ser Asn  
530                   535                   540

Arg Ile Glu Val Tyr Val Pro Asn Met Ala Ala Gly Leu Thr Asp Val  
545                   550                   555                   560

Lys Val Thr Ala Gly Gly Val Ser Ser Asn Leu Tyr Ser Tyr Asn Ile  
565                   570                   575

Leu Ser Gly Thr Gln Thr Ser Val Val Phe Thr Val Lys Ser Ala Pro  
580                   585                   590

Pro Thr Asn Leu Gly Asp Lys Ile Tyr Leu Thr Gly Asn Ile Pro Glu  
595                   600                   605

Leu Gly Asn Trp Ser Thr Asp Thr Ser Gly Ala Val Asn Asn Ala Gln  
610                   615                   620

Gly Pro Leu Leu Ala Pro Asn Tyr Pro Asp Trp Phe Tyr Val Phe Ser  
625                   630                   635                   640

Val Pro Ala Gly Lys Thr Ile Gln Phe Lys Phe Phe Ile Lys Arg Ala  
645                   650                   655

Asp Gly Thr Ile Gln Trp Glu Asn Gly Ser Asn His Val Ala Thr Thr

10340-WO.ST25.txt  
660                  665                  670

Pro Thr Gly Ala Thr Gly Asn Ile Thr Val Thr Trp Gln Asn  
675                  680                  685